



Development of a Spacecraft Materials Selector Expert System

E5



Objective

Expert systems can be used to provide a tool to selectively recall and distribute information that will allow quick evaluation of design features, mission concepts, and support mission operational and performance assessments. The Spacecraft Materials Selector (SMS) expert system will consist of a backward-chaining inference engine and a set of knowledge bases for (1) space environment definition, (2) materials properties definition, and (3) materials performance assessments. Information within the system will be accessible essentially immediately. The system will be designed so that new information can be added quickly, upgrading the capability of the system each time a new piece of information is added.

Why Needed

Many spacecraft operate under severe conditions and are always at risk of failure. The consequences of hardware and/or system failures are extreme in terms of cost, data loss, and time required replacing the loss. Making use of previous experience of materials choice and components is very important when documenting the spacecraft design for future space applications.

Point of Contact

PI: Boeing / Gary Pippin
MSFC COTR: Rachel Kamenentzky / 256-544-1089

Sponsor

NASA Space Environments and Effects (SEE) Program